



U.S. Department of the Interior • Bureau of Mines

MINERAL INDUSTRY SURVEYS

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Manganese, Monthly

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MANGANESE IN OCTOBER 1993

Reported consumption of manganese ore containing 35% or more manganese, exclusive of that at iron and steel plants, decreased moderately in October, compared with that of the previous month, to 28,300 metric tons, according to the U.S. Bureau of Mines. This brought the revised year-to-date total to 270,000 tons. These figures increase to 31,300 and 299,000, respectively, when estimates for annual respondents are added on the basis of 1992 data. Corresponding industry stocks of ore at the end of the month increased marginally to 239,000 tons. (Data for the most recent 13 months are graphed on page 3.)

This report contains data for the July through September quarter of 1993 on domestic consumption and stocks of manganese ferroalloys and metal (table 8).

Foreign trade data for October will appear in a subsequent report. Among the September foreign trade data tabulated in this report, imports included the first receipts of ore from the Republic of South Africa since April 1990. Among exports, those of ore were the greatest since July 1991 to raise the total for the year-to-date slightly above the total for all of 1992. The volume of reported exports was unusually great for ferromanganese, but this was mainly because of a large quantity of material containing less than 2% carbon of low unit value destined for Indonesia that the Bureau of the Census has been asked to verify.

For October, the Defense Logistics Agency (DLA), U.S. Department of Defense, reported a cash disposal of 219,815 tons of metallurgical ore and a payment-in-kind disposal of 16,535 tons of high-carbon ferromanganese. DLA also reported that the ore was sold under 5-year contracts, one to Elkem Metals Co., Pittsburgh, PA, for 74,769 tons with manganese contents ranging from 47.1% to 52.4% and the other to Metals Refining Co., Orem, UT, for 145,046 tons with manganese contents ranging from 34.1% to 43.2%.

Prepared by the Branch of Metals and the Branch of Data Collection and Coordination,
December 14, 1993.

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Updates.--Two new sources of information relating to supply and use of manganese have appeared. Industrial Minerals (London) has published in its November 1993 issue another of its occasional reviews of manganese ore. The article discusses the world's major producers and the markets for nonmetallurgical uses. ASM International (Materials Park, OH) has published "High Manganese High Nitrogen Austenitic Steels" in which is collected the papers presented on this subject at ASM International's Materials Week '87 and '92 conferences. Most of the steels discussed in this book are stainless steels.

The U.S. Bureau of Mines has issued a special report describing the use of minerals in the chemical industry. "Chemical Industry Applications of Industrial Minerals and Metals" consists of a compilation of brief individual sections for nearly 50 commodities, including manganese. A copy of the report can be obtained at no charge by writing the U.S. Bureau of Mines, Branch of Industrial Minerals, MS 5209, 810 7th St., NW, Washington, DC 20241, or by contacting Jane Willard, telephone number (202) 501-9400, fax number (202) 501-3751.

Manganese ore: U.S. reported consumption and
industry stocks, exclusive of iron and steel plants.

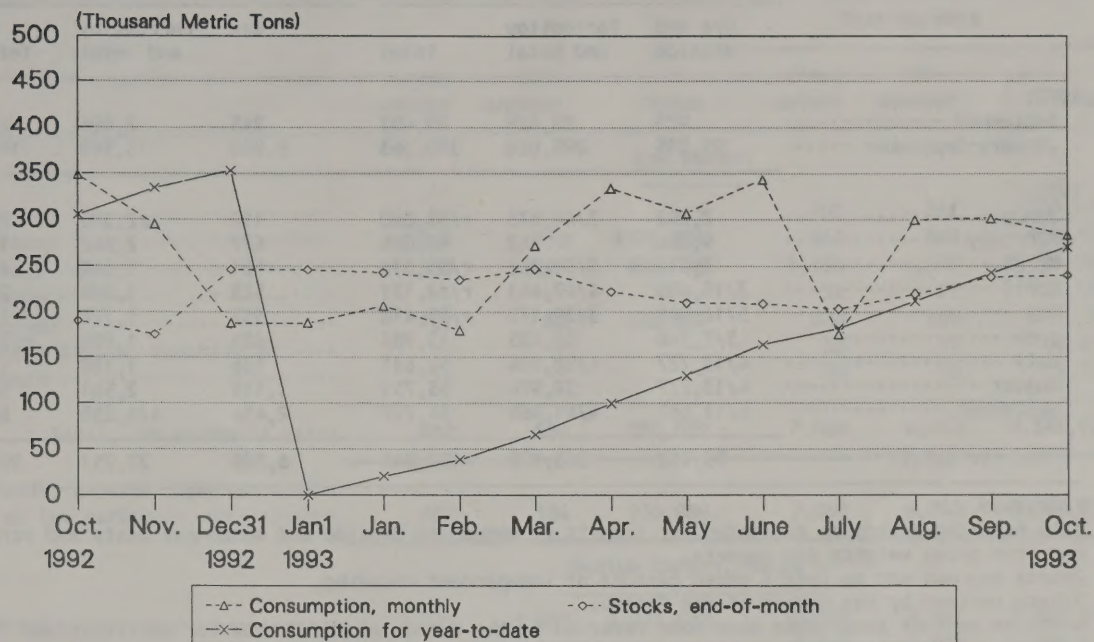


TABLE 1
SELECTED U.S. FOREIGN TRADE IN MANGANESE

(Metric tons, manganese content)1/

	Imports for consumption			Exports		
	Ore and dioxide	Ferroalloy and metal	Total	Ore	Ferroalloy and metal	Total2/
1992:						
September -----	973	28,428	29,401	245	2,093	2,338
January-September -----	95,535	295,028	390,563	5,845	13,593	19,437
1993:						
January -----	2,292	3/44,576	r/46,868	114	4/2,305	2,419
February -----	9,264	37,762	47,026	427	2,642	3,069
March -----	3,714	3/31,602	r/35,316	551	3,540	4,091
April -----	3/15,680	4/47,441	r/63,121	523	1,884	2,407
May -----	5/16,248	3/39,170	r/55,418	557	1,178	1,735
June -----	5/7,546	36,435	43,981	681	1,598	r/2,279
July -----	4/13,727	4/38,904	52,631	156	1,188	1,344
August -----	4/13,777	39,974	53,751	1,119	2,561	3,680
September -----	4/13,662	4/41,065	54,727	2,454	4/6,355	8,809
Year-to-date2/ -----	95,912	356,929	452,841	6,580	23,251	29,831

r/Revised.

1/As reported except as estimated for imports of manganese dioxide and manganese waste and scrap and from gross weights for exports.

2/Data may not add to totals shown because of independent rounding.

3/Data revised by the Bureau of the Census.

4/All or part of these data have been referred to the Bureau of the Census for verification.

5/Data verified as correct by the Bureau of the Census.

Source: Bureau of the Census.

TABLE 2
U.S. IMPORTS FOR CONSUMPTION OF SILICOMANGANESE
IN SEPTEMBER 1993

(Metric tons)

Source	Gross weight	Mn content	Value	Year-to-date		
				Gross weight	Mn content	Value
Australia -----	--	--	--	1/19,340	1/12,751	2/\$7,489,740
Brazil -----	7,521	4,906	\$3,158,807	46,923	30,534	18,823,324
Canada -----	--	--	--	167	113	58,999
China -----	6,046	3,930	2,338,043	12,697	8,343	4,769,930
Croatia -----	--	--	--	7,550	4,908	3,200,690
France -----	--	--	--	9,974	6,533	4,230,210
Italy -----	--	--	--	5,200	1/3,393	2,156,960
Macedonia -----	--	--	--	5,535	3,598	2,497,747
Mexico -----	3,000	1,817	981,371	17,985	11,528	7,512,619
Norway -----	207	128	152,267	15,323	9,634	3/3,863,726
Russia3/ -----	448	282	154,560	448	282	154,560
South Africa, Republic of ---	7,170	4,689	3,040,907	44,043	28,995	20,353,372
Spain -----	--	--	--	778	494	666,215
Ukraine -----	2,559	1,847	934,215	21,816	15,201	8,081,210
Venezuela -----	2,400	1,560	974,000	12,487	8,089	4,663,925
Total4/ -----	29,351	19,159	11,734,170	220,265	144,397	88,523,227
Total, general imports -----	29,351	19,159	11,734,170	225,532	148,308	90,626,481

1/Data revised by the Bureau of the Census.

2/Data verified as correct by the Bureau of the Census.

3/All or part of these data have been referred to the Bureau of the Census for verification.

4/Data may not add to totals shown because of independent rounding.

Source: Bureau of the Census.

TABLE 3
U.S. IMPORTS FOR CONSUMPTION OF FERROMANGANESE
IN SEPTEMBER 1993

(Metric tons)

Source	Gross weight	Mn content	Value	Year-to-date		
				Gross weight	Mn content	Value
Low Carbon						
China -----	--	--	--	700	560	\$556,500
France -----	241	214	\$374,154	641	568	905,173
Italy -----	319	290	456,496	5,130	4,647	7,199,805
Japan -----	--	--	--	32	27	65,596
Norway -----	102	80	106,239	520	409	541,717
South Africa, Republic of ----	--	--	--	20	17	40,710
Spain -----	--	--	--	18	16	33,721
Total, low carbon1/ -----	662	584	936,889	7,060	6,243	9,343,222
Total, general imports of low carbon -----	662	584	936,889	7,060	6,243	9,343,222
Medium Carbon, 1%-2% C						
Brazil -----	1,295	1,037	1,021,422	3,073	2,464	2,805,903
France -----	--	--	--	2,540	2,085	2,141,728
Germany -----	1,000	816	752,911	4,754	2/3,909	3,754,324
Japan -----	--	--	--	3,997	3,200	2,898,537
Mexico -----	2,955	2,364	2,319,317	17,680	13,962	12,241,623
South Africa, Republic of ----	--	--	--	8,682	7,018	6,864,087
Total, m.c., 1%-2% C1/ --	5,251	4,217	4,093,650	40,725	32,637	30,706,202
Total, general imports of m.c., 1%-2% C -----	5,251	4,217	4,093,650	40,725	32,637	30,706,202
High Carbon						
Australia -----	--	--	--	17,000	13,075	6,250,000
Brazil -----	5,181	3,955	1,986,055	27,253	20,828	10,512,341
Canada -----	--	--	--	82	64	32,280
France -----	6,900	5,450	3,083,610	51,786	40,064	21,467,675
Mexico -----	1,450	3/870	328,387	4,526	2,899	1,133,461
Russia -----	1,665	1,166	377,955	10,804	7,775	3,072,179
South Africa, Republic of ----	5,330	4,189	2,184,393	96,163	75,544	40,584,876
United Kingdom -----	--	--	--	2,724	1,780	561,969
Total, high carbon1/ ----	20,526	15,630	7,960,400	210,338	162,028	83,614,781
Total, general imports of high carbon -----	20,526	15,630	7,960,400	210,338	162,028	83,614,781
Grand total -----	26,439	20,431	12,990,939	258,123	200,908	123,664,205
Grand total, general imports -----	26,439	20,431	12,990,939	258,123	200,908	123,664,205

1/Data may not add to totals shown because of independent rounding.

2/Data revised by the Bureau of the Census.

3/All or part of these data have been referred to the Bureau of the Census for verification.

Source: Bureau of the Census.

TABLE 4
U.S. IMPORTS1/ OF MANGANESE ORE (20% OR MORE MN)
IN SEPTEMBER 1993

(Metric tons)

Source	20%-47% Mn		47% or more Mn		Total	
	Gross weight	Mn content	Gross weight	Mn content	Gross weight	Mn content
September 1993:						
Australia -----	--	--	20	10	20	10
Gabon -----	--	--	11,102	5,773	11,102	5,773
Morocco -----	--	--	37	2/19	37	19
South Africa, Republic of -----	--	--	12,012	6,006	12,012	6,006
Total3/ -----	--	--	23,171	11,809	23,171	11,809
Year-to-date:						
Australia -----	--	--	57,323	29,321	57,323	29,321
Brazil -----	8,000	3,688	3,928	1,885	11,928	5,573
Gabon -----	(4/)	(4/)	5/87,038	5/44,006	87,038	44,006
Mexico -----	2,700	1,217	--	--	2,700	1,217
Morocco -----	--	--	47	2/25	47	25
South Africa, Republic of -----	--	--	12,012	6,006	12,012	6,006
Total3/ -----	10,700	4,905	160,349	81,243	171,048	86,148

1/Quantities for general imports and imports for consumption are identical.

2/Includes U.S. Bureau of Mines conversion of reported data (apparent MnO2 content to Mn content).

3/Data may not add to totals shown because of independent rounding.

4/Data revised to zero.

5/Data revised by the Bureau of the Census.

Source: Bureau of the Census.

TABLE 5
U.S. IMPORTS FOR CONSUMPTION OF MANGANESE DIOXIDE
AND MANGANESE METAL IN SEPTEMBER 1993

(Metric tons, gross weight)

Source	Manganese dioxide				Manganese metal, unwrought	
			Year-to-date		Quantity	Year-to-date
	Quantity	Value	Quantity	Value		
Australia -----	2,158	\$4,029,604	7,442	1/\$11,535,308	--	--
Belgium -----	108	186,984	1,012	1,690,867	--	--
Brazil -----	82	115,879	1,013	1,405,237	--	--
China -----	--	--	--	--	419	1,574
France -----	--	--	--	--	--	200
Germany -----	--	--	37	154,567	--	--
Ireland -----	740	1,081,040	2/6,221	2/9,035,793	--	--
Japan -----	--	--	74	170,063	--	--
Russia -----	--	--	40	88,655	--	--
South Africa, Republic of --	--	--	229	325,328	898	5,734
United Kingdom -----	1/1	1/2,031	1/ 2/202	1/ 2/303,133	--	(3/)
Total4/ -----	3,089	5,415,538	16,270	24,708,951	1,316	7,509
Total, general imports -----	3,089	5,415,538	16,306	24,770,223	1,316	7,629

1/All or part of these data have been referred to the Bureau of the Census for verification.

2/Receipt(s) from Ireland was erroneously reported as received from the United Kingdom.

3/Less than 1/2 unit.

4/Data may not add to totals shown because of independent rounding.

Note: Imports for consumption of manganese, other, totaled 157 tons, all of which was from the Republic of South Africa, to give year-to-date total of 4,036 tons1/.

Note: Imports for consumption of metallic manganese waste and scrap totaled 4 tons, all of which was from Canada1/, to give a revised year-to-date total of 159 tons1/.

Source: Bureau of the Census.

TABLE 6
U.S. EXPORTS OF MANGANESE ORE (20% OR MORE MN), FERROMANGANESE,
SILICOMANGANESE, AND MANGANESE METAL BY COUNTRIES OF DESTINATION
IN SEPTEMBER 1993

(Metric tons, gross weight)

Destination	Manganese ore		Ferromanganese, 2% or less C		Silicomanganese		Manganese metal ^{1/}	
	Quantity	Year-to-date	Quantity	Year-to-date	Quantity	Year-to-date	Quantity	Year-to-date
Argentina -----	--	277	--	--	--	--	5	5
Australia -----	--	--	--	--	--	--	--	18
Brazil -----	--	--	--	--	--	9	1	79
Canada -----	4,299	7,574	1,408	6,469	825	7,101	65	895
China -----	--	--	--	--	--	--	--	20
Colombia -----	--	--	7	42	--	--	--	--
Dominican Republic -----	--	10	--	2	--	--	--	--
Ecuador -----	--	324	--	--	--	--	--	--
El Salvador -----	--	--	--	20	--	--	--	--
France -----	--	--	--	--	--	--	--	10
Germany -----	--	--	--	--	--	--	--	48
Ghana -----	--	--	--	--	--	--	--	3
Honduras -----	--	--	--	10	--	--	--	--
Hong Kong -----	--	--	--	--	--	--	--	40
India -----	--	33	--	--	--	--	--	2
Indonesia -----	--	--	2/5,001	5,991	--	--	--	--
Italy -----	--	--	--	--	--	--	--	12
Japan -----	--	711	--	--	--	163	8	866
Korea, Republic of -----	--	1,163	--	--	--	--	--	48
Mexico -----	--	--	--	33	--	2/336	16	86
Netherlands -----	447	1,393	--	--	--	--	145	709
Sweden -----	162	484	--	--	--	--	--	35
Taiwan -----	--	41	--	--	--	--	--	35
Trinidad and Tobago -----	--	--	--	21	--	--	--	--
United Kingdom -----	--	37	--	40	--	--	75	207
Venezuela -----	--	1,113	--	215	--	--	--	6
Total -----	4,908	3/13,161	6,416	12,843	825	7,609	315	3,124

^{1/}Includes manganese-aluminum, some other alloys, and waste and scrap.

^{2/}All or part of these data have been referred to the Bureau of the Census for verification.

^{3/}Data do not add to total shown because of independent rounding.

Note: Exports of ferromanganese with more than 2% carbon totaled 540 tons, of which the largest quantity went to Canada, 518 tons, to give a year-to-date total of 6,277 tons.

Source: Bureau of the Census.

TABLE 7
U.S. FOREIGN TRADE IN SELECTED MANGANESE CHEMICALS
IN SEPTEMBER 1993, BY CLASS

(Metric tons, gross weight, and thousand dollars)

Class			Principal sources and destinations: quantity; value	Year-to-date		
	Quantity	Value		Quantity	Value	Principal sources and destinations: quantity; value
IMPORTS FOR CONSUMPTION						
Manganese oxides other than dioxide -----	61	117	Israel 29; \$24	618	1,108	Japan 236; \$709
Sulfates, basket category, including manganese sulfate --	1,448	816	Mexico 934; \$421	16,163	10,923	Mexico 8,591; \$4,600
Potassium permanganate -----	177	160	Czech Republic 142; \$119	1,088	1,620	China 457; \$429
Manganites, manganates, and other permanganates -----	15	45	Canada 15; \$45	40	120	Canada 40; \$120
EXPORTS						
Manganese dioxide -----	500	253	Dominican Republic 254; \$76	3,096	2,553	Canada 2,033; \$1,223
Manganese oxides other than dioxide -----	481	232	Canada 402; \$107	4,711	2,655	Canada 4,031; \$1,167
Sulfates, basket category, including manganese sulfate --	1,889	651	Canada 1,643; \$267	13,670	7,380	Canada 11,136; \$2,788
Manganites, manganates, and permanganates -----	52	125	Canada 31; \$62	576	1,447	Germany 312; \$791

Source: Bureau of the Census.

TABLE 8
U.S. CONSUMPTION, BY END USE, AND INDUSTRY STOCKS OF
MANGANESE FERROALLOYS AND METAL IN JULY THROUGH SEPTEMBER 1993

(Metric tons, gross weight, unless otherwise specified)

End use	Ferromanganese		Total1/	Silico- manganese	Manganese metal
	High carbon	Medium and low carbon			
Steel:					
Carbon -----	45,682	15,054	60,736	15,857	(2/)
Stainless and heat-resisting -----	2,703	(2/)	2,703	1,138	401
Full alloy -----	4,571	1,254	5,825	3,652	(2/)
High-strength, low-alloy -----	4,638	806	5,444	1,545	(2/)
Unspecified3/ -----	71	148	219	112	883
Total steel1/ -----	57,666	17,261	74,927	22,304	1,284
Cast irons -----	1,946	89	2,035	W	--
Superalloys -----	W	--	W	--	34
Alloys (excluding alloy steels and superalloys) -----	151	W	151	W	3,639
Miscellaneous and unspecified -----	W	W	W	W	W
Total consumption, end of period1/ --	59,764	17,350	77,113	22,304	4,956
Average daily consumption rate, tons per day -----	650	189	838	242	54
Total consumption, year-to-date --	177,288	51,202	228,490	78,115	15,801
Total stocks, consumers and producers, September 30 -----	24,712	5,060	29,772	5,113	W

W Withheld to avoid disclosing company proprietary data.

1/Data may not add to totals shown because of independent rounding.

2/Withheld to avoid disclosing company proprietary data; included in "Steel: Unspecified."

3/Includes electric and tool steel, and items indicated by (2/).